

REMARKS

Preliminarily, Applicants request rejoinder of withdrawn method claims 23-26, including independent claims 23 and 25 upon indication of allowable product claims. Claim 23 includes all of the limitations of the spark plug as claimed in claim 8 (a crystal grain of more than 50 μ m, and an oxygen content of not more than 300 ppm). Providing that the method claims meet the requirements of 35 U.S.C. § 112, Applicants are entitled to rejoinder as a matter of right. MPEP § 821.04.

Support for new claims 27 and 28 is found, for example, at page 3, lines 27-31 of the specification. That is, the igniter is distinguished from the other portion of the welded chip that is alloyed, through the welding, with a material of the ground electrode or center electrode.

Claim 12 has been amended to correct an inadvertent error.

Entry of the amendments, discussed in further detail below, is respectfully requested as placing this case in condition for allowance.

Review and reconsideration on the merits are requested.

In response to the objection, claims 2 and 10 have been amended to recite that the metallic material composing the igniter is an alloy, and the metallic material further includes a sub-component of a nickel. It is respectfully submitted that the scope of the amended claims is clear, and withdrawal of the objection is respectfully requested.

Claims 1-4, 7 and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Mamoru et al. (JP '376). The grounds for rejection remain the same as set forth in the previous Office Action.

Claims 5 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '376 in view of U.S. Patent 6,215,234 to Abe et al. The Examiner relied on Abe et al. as teaching a spark discharge gap of 0.2mm to 0.4mm within the scope of the rejected claims.

Claims 8-12, 15, and 21-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '376 in view of U.S. Patent 6,045,424 to Chang et al. Chang et al. was cited as teaching a spark plug having an igniter tip made of a noble metal having a mean crystal grain diameter of 250 microns, citing column 5, lines 36-37. The reason for rejection was that it would have been obvious to modify the spark plug of JP '376 to have a tip having an average crystal grain diameter of more than 50 microns so as to provide a spark plug with a more robust tip as taught by Chang et al.

Claims 13 and 14 were rejected 35 U.S.C. § 103(a) as being unpatentable over JP '376 in view of Chang et al., further in view of Abe et al. The Examiner relies on these two secondary references as teaching the claimed discharge gap and crystal grain size.

Each of the rejections relies on JP '376 as a primary reference.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the amendment to the claims and the following remarks.

Fig. 2(c) of JP '376 clearly shows complete fusion of the noble metal material 18 into the fused solid noble metal alloy layer 19. The amendment to claims 1, 8, 23 and 25 to recite "wherein at least a portion of the igniter (31, 32) is fixed to the at least one of the center electrode (3) and the ground electrode (4) via a weldment (W1, W2)" thereby distinguishes the claimed invention from JP '376.

Particularly, the weldment (W1, W2) of the claimed invention does not constitute a part of the igniter (31, 32). That is, the igniter (31, 32) is a portion that is not fused or coagulated through welding.

JP '376 has no description of a portion corresponding to the igniter (31, 32) of the present claims. The fused solid noble metal alloy layer 19 of JP '376 corresponds merely to weldment (W1, W2) of the claimed invention, but not to the igniter (31, 32).

Other differences between the present invention and JP '376 are as follows.

In JP '376, the limitation of the sum of the nitrogen and oxygen gas content (200 ppm or below in weight) is directed to solid noble metal layer 19 that is completely fused. On the other hand, in the claimed invention, the limitation of oxygen content (not more than 120 ppm, or not more than 300 ppm) is directed to the igniter (31, 32) that is not fused.

None of the secondary references cure the deficiencies of JP '376.

In view of the amendment to the claims and the above remarks, it is respectfully submitted that the present invention is patentable over the cited references, and withdrawal of the foregoing rejections is respectfully requested.

Entry of the amendments and allowance of claims 1-19, 21, and 23-28 is earnestly solicited. In the event that the Examiner believes it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C., telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/893,488

Q63852

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Respectfully submitted,



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